Alliance

Bioversity International

CIAT

TO'O

Fig 1. To'o Bunch

Classification

Ploidy: 2X
Genome: AA
Type: Dessert
Suspected country of origin: Papua New Guinea
ITC code: ITC004

Status

To'o is a dessert banana believed to originate from Thailand, rich in pro-Vitamin A carotenoids with at least **544 µg Retinol Activity Equivalent** per 100g when raw (on fresh weight basis). This is estimated to meet **>100% of the daily recommended intake** of Vitamin A of children under 5 years.

It is being fast-tracked for potential adoption into the agri-food systems of Eastern Africa. It has been assessed on-station and on-farm in Burundi and Eastern Democratic Republic of Congo (DRC). On-station trials are also underway in Tanzania, and Uganda.

Fig 2. Whole plant

Fig 3. Pseudostem

Description

* To'o has medium-sized plant stature. The underlying pseudostem has a predominantly green-yellow colour with pink-purple pigmentation (fig 3)
* The leaf petiole is open with spreading margins that are winged and not clasping the pseudostem. The petiole margin is pink-purple. The petiole base has sparse brown blotches (fig 4,5)
* The leaves have an erect habit and are medium green with both sides of the base pointed (fig 6)
* The male bud is intermediate in shape with an obtuse and split bract apex. The bracts have an inner orange red while the outer bract is red-purple in colour (fig 7)
* The flowers have a cream coloured lobe and compound tepal. The free tepal is translucent white and fan shaped. The style and filament are cream in colour (fig 8)
* The fingers are long, curved, and slightly ridged. The fruit apex is lengthily pointed. The peel of mature unripe fruit is light green in colour (fig 9)
* The pulp colour of a mature finger (unripe) is yellow-orange: RHS : 9/3 7507 U (fig 10)

Fig 4. Neck

Fig 5. Petiole

Fig 6. Leaf

Fig 7. Male bud

Fig 8. Flower

Fig 9. Hand

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Agronomic Traits (Average of 8-10 plants for 3 cycles)	To'o
Time from flowering to harvest (days)	111.9
Plant height at flowering (cm)	250.3
Pseudostem girth at base at flowering (cm)	65.0
Number of functional leaves at flowering	8.7
Bunch weight (kg)	4.3
Number of hands	4.2
Number of fingers on bunch	32.2
Weight of hand (kg)	0.8
Fruit circumference (cm)	9.1
Fruit length (cm)	18.8

Fig 10. Finger

Agronomic Performance

* Characteristics of To'o to the left are based on agronomic data from on-station trials in Burundi, and North and South Kivu in Eastern DRC.
* Values are averages of 8-10 plants evaluated from over 3 cropping cycles in each site: Burundi – 2 sites; South Kivu – 3 sites; & North Kivu -3 sites.
* To'o takes approximately ***3.7 months*** from flowering to maturity
* A bunch of To'o can weigh up to ***13 kg***

Pro-vitamin A carotenoids Content

* To'o contains ***7,765 µg/100g*** pro-Vitamin A carotenoids when ***ripe*** (on fresh weight basis)
* This yields ***544 µg Retinol Activity Equivalent (RAE)*** per 100g which can be estimated to meet 136% of the daily recommended intake of Vitamin A of children under 5 years (400 RAE µg/day) and 777% of the daily recommended intake of Vitamin A of adult women (700 RAE µg/day)

  Values are means of three individual samples on fresh weight basis of bunches obtained from North Kivu, DRC[1]. 100g of banana is approximately one finger.

* The pro-Vitamin A carotenoid content increases as the banana ripens
* To'o is a dessert banana that is mainly consumed when raw and fully ripe

References

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